

## REMARKS

### *Claim Amendments*

Upon entry of the foregoing amendment, Claims 2, 3, and 5-20 are pending. Claims 2, 3, 5-7, 9, 14, and 15 are currently amended herein. Claims 1, 4, and 21 are cancelled herein without prejudice or disclaimer as to the subject matter disclosed therein. Claims 10-13 and 17-19 have been withdrawn by the Examiner.

Support for the amendments are found throughout the specification and in the claims as originally filed. *See e.g.*, page 23, lines 12- 18; page 39, line 6; page 41, lines 9-20; and page 42, lines 3-8. Applicants respectfully submit the above amendments do not constitute new matter.

### *Rejections Under 35 U.S.C. §112, First Paragraph*

Claims 1-9, 14-16 and 20-21 stand rejected under 35 U.S.C. §112, first paragraph, because the specification, according to the Office Action, does not reasonably provide enablement for the transformation of any plant with any gene that reduces the activity of potato starch synthase III, potato starch branching enzyme I, and potato starch branching enzyme II, or any plant with these three genes from any plant source.

Applicants respectfully disagree and traverse this rejection for the reasons set forth below.

Applicants have canceled claims 1, 4, and 21, and amended claims 2, 3, 5-7, 9, 14, and 15. As amended, the claims relate to genetically modified dicotyledonous cells and plants, and methods of making the same. The claims have also been amended to recite specific sequences having disclosed activities. Applicants submit these amendments overcome the enablement rejection.

To the extent the rejection may be applied to the amended claims, Applicants make the following remarks.

The Examiner cites Tetlow et al., a post-filing date reference, to suggest that starch synthesis in plants is unpredictable.

Applicants respectfully disagree. Rather, Tetlow et al. discloses not only that sequences involved in starch metabolism are “highly conserved,” but also that analogous mutations in starch-biosynthetic genes in higher plants show “consistent trends.” Indeed, on page 2132, left column, 2<sup>nd</sup> paragraph, Tetlow et al. states:

***The complement of these starch metabolic enzymes***, which is a reflection of the starch biosynthetic and degradative pathways, ***is well conserved between plastids/tissues which make different types of starches***, for example transitory starch (made in chloroplasts), and storage starch (made in amyloplasts). With few exceptions, the various isoforms of the many starch metabolic enzymes can be found in both chloroplasts and amyloplasts, and ***the***

*amino acid sequences of the various enzymes involved in starch metabolism are highly conserved. In addition, mutations in analogous starch-biosynthetic and degradative genes in higher plants show consistent trends, which illustrates conservation of their biological roles,* although their impact varies depending upon the genetic background. (emphasis added) (internal citations omitted)

Applicants submit Tetlow et al. supports Applicants' position that the full scope of the claimed invention is enabled, including transgenic plants and plant cells other than potato.

On page 4, the Examiner states, "the affect these variations [in tissue specific expression] have on starch derived from endosperm is unpredictable." As amended, the claims recite "dicotyledonous" plant cells and plants. Because only monocotyledonous plants have seeds comprising an endosperm, Tetlow's teachings regarding monocotyledonous are irrelevant. It is also noted that in Table 1, Tetlow et al. does not show any differences for the starch branching enzymes (e.g., SBI and SBE II) of dicotyledonous plants.

On pages 4 and 5, Patron et al. and Edwards et al. are cited by the Examiner. These references are inapplicable to the amended claims as the references relate to GBSS genes, whereas the claims relate to SSIII, BEI, and BEII.

In view of the foregoing, Applicants respectfully request withdrawal of the enablement rejection.

Claim 1-9, 14-16 and 20-21 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Applicants respectfully disagree and traverse this rejection for the reasons set forth below.

As discussed above, the claims have been amended to recite specific sequences having disclosed activities. Applicants also submit the specification discloses a representative number of SSIII, BEI, and BEII sequences. *See e.g.*, page 12, lines 21 et seq. and page 14, lines 25 et seq. (SS III), page 15, lines 14 et seq. and 16, lines 5 et seq. (BE I), page 15, lines 27 et seq. and page 16, lines 18 et seq. (BE II); *see also* page 47, line 12 to page 48, line 5.

In view of the foregoing, Applicants respectfully request withdrawal of the written description rejection.

#### ***Rejections Under 35 U.S.C. §112, Second Paragraph***

Claims 1-9, 14-16, and 20-21 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Applicants respectfully disagree and traverse each of the rejections for the reasons set forth below.

Claims 1, 2, 4, and 5 are rejected over the recitation of “leading” or “leads.” Applicants have amended the claims to remove the recitation of “leading” or “leads.”

Claims 2, 5-7, and 14-15 are rejected over the recitation of “a.” Applicants have amended the claims to recite “the” instead of “a,” as suggested by the Examiner.

Claims 3 and 9 are rejected over the recitation of “plant cells.” Applicants have amended the claims to recite “plant cell,” as suggested by the Examiner.

Claims 8, 16, and 21 are rejected over the recitation of “plants.” Applicants have amended the claims to recite “plant,” as suggested by the Examiner.

Claims 9 and 21 are rejected over the recitation of “proteins with the enzymatic activity of at least one SSIII, BEI and/or BEII protein or their fragments.” Applicants have amended the claims to remove this recitation.

In view of the foregoing, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 112, second paragraph.

### ***Rejections Under 35 U.S.C. § 102(b)***

Claims 1-6, 8-9, 14-16 and 20-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by Broglie et al. (U.S. Patent 6,376,749, hereinafter “the ‘749 patent”).

Applicants respectfully disagree and traverse this rejection for the reasons set forth below.

Applicants submit that Broglie et al. discloses methods wherein a starch branching enzyme I or II activity is reduced. *See e.g.*, abstract, claims 1, 7, and 12, Table 3, and Examples 1 and 3 of the ‘749 patent. Furthermore, Broglie et al. is directed to corn — a monocotyledonous plant. *See e.g.*, abstract. Broglie does not disclose dicotyledonous cells and plants that have a reduced activity of SSIII, BEI, and BEII proteins.

The claimed invention relates to dicotyledonous cells and plants that have a reduced activity of SSIII, BEI, and BEII proteins. As such, Broglie et al. does not disclose each and every limitation, and therefore does not anticipate the claimed invention.

Claims 1-6, 8-9, 14-16 and 20-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by Edwards et al. (WO99/66050, hereinafter “the ‘050 publication”).

Applicants respectfully disagree and traverse this rejection for the reasons set forth below.

Applicants submit that Edwards et al. discloses methods wherein a SSII and SSIII activity is

reduced. *See e.g.*, pages 9-10 of the '050 publication. Edwards et al. does not disclose dicotyledonous cells and plants that have a reduced activity of SSIII, BEI, and BEII proteins.

The claimed invention relates to dicotyledonous cells and plants that have a reduced activity of SSIII, BEI, and BEII proteins. As such, Edwards et al. does not disclose each and every limitation, and therefore does not anticipate the claimed invention.

In view of the foregoing, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 102(b).

### CONCLUSION

It is believed that these amendments and remarks should place this application in condition for allowance. A notice to that effect is respectfully solicited. If the Examiner has any questions relating to this response or the application in general he is respectfully requested to contact the undersigned so that prosecution of this application may be expedited.

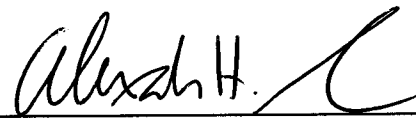
It is believed that no fees are required for entry of this response, but should any fees be necessary, the Commissioner is authorized to charge such fees to the undersigned's **Deposit Account No. 50-0206**.

Respectfully submitted,

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Dated: June 22, 2007

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